

POSITIVE SYSTEMS

ADAR System 5500, Multispectral 1-Meter Data Set

PHASE II - Data Specifications

Specifications	IM-R1i-60 Imagery With Post-Flight Correction 12-bit
Post-Flight Correction	<ul style="list-style-type: none"> • All imagery to be co-registered within 0.5 pixel @ 90% within the project area. • Correction for lens vignetting effects. • Radiometric adjustment for sensor nonuniformities • Dark current subtraction: Subtract dark frame current value (on a pixel-by-pixel basis)
Spectral Band Pass (blue)	450 - 515nm
Spectral Band Pass (green)	525 - 605nm
Spectral Band Pass (red)	630 - 690nm
Spectral Band Pass (NIR)	750 - 900nm
Radiometric Quantization	12-bits per spectral channel
Radiometric Accuracy & Stability	<ul style="list-style-type: none"> • Absolute Radiometric Accuracy to within $\pm 10\%$ • Relative Radiometric Accuracy to within $\pm 5.0\%$ • Linearity to within $\pm 5\%$ over the entire imaging exposure dynamic range • *Requirements on banding, streaking, failed and non-calibrated detectors: 99.5% of all the detectors should be within $\pm 5\%$ or ± 1 DN of the mean dark counts of all the focal plane array detectors; 99.5% of all detectors should be within $\pm 5\%$ of the mean gain coefficients of all focal plan array detectors.

Spatial Resolution and Image Quality (at all field angles)

Benign Terrain:

- <200m terrain change, along any flightline.
- GSD: .7m GSD +/- .1m
- FWHM of line spread function (derived from an edge target response): less than 1.0m (MTF>0.2 @ Nyquist)
- Overlaps: 90% of endlaps and sidelaps not smaller than 35%; the remaining 10% of endlaps and sidelaps shall be 15% or greater

Rugged Terrain:

- 201m to 750m, along any flightline.
- GSD: .8m GSD +/- .2m
- FWHM of line spread function (derived from an edge target response): less than 2m (MTF>0.2 @ Nyquist)
- Overlaps: 90% of endlaps and sidelaps in the range of 5% to 55%; the remaining 10% of endlaps and sidelaps shall be 10% or greater

Extreme Terrain:

- 751m to 1500m, along any flightline
- GSD: 1m GSD +/- 0.4m
- FWHM of line spread function (derived from an edge target response): less than 2.8m guarantee of full coverage (MTF>0.2 @ Nyquist)
- Overlaps: 90% of endlaps and sidelaps are in the range of 1% to 61%

Severe Terrain:

- >1500 meters, along any flightline
- No guaranteed spatial resolution accuracy
- No guarantee of full coverage
- Gaps likely in imagery due to terrain relief

Signal to Noise Levels

*"At zero spatial frequency, for all spectral bands, the SNR will be greater than 70 for a Lambertian surface with 20% reflectance, illuminated at solar zenith angle of 30 degrees"

Peak Response:

"Band edge points at 50% peak response shall be within +/- 10 nm of the normal values" and "Slope through the 50% point shall be at least 20% per 20nm"

Out-Of-Band filter response <5% of total integrated transmittance within 5% transmission points of that band.

For each band, the response for 70% of the data within the band passes shall be

	within 20% of the maximum value.
Image File Format	Formats compatible to accepted image analysis packages such as ArcInfo, ERDAS Imagine, ENVI and ER Mapper
Metadata File Format	Intermediate level ECS Metadata Std.
Percent Cloud Cover (site)	Less than 10% across full dataset
Absolute Geolocation Accuracy	Frame center point coordinate referenced to \pm 100 meters in metadata listing
Resampling Algorithm	Nearest Neighbor